036

Series/Parallel Equivalent Circuits in Excel

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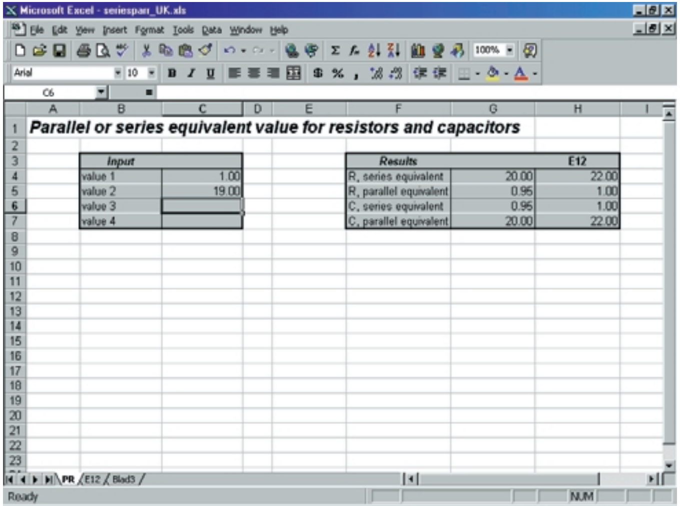
We all complain occasionally about Microsoft, but the advantage of their monopoly position is that everyone has the same programs. As a result, in spite of everything there is at least a sort of standardisation. The program described here runs under Excel and calculates the serial and parallel values of resistors and capacitors.

You can enter up to four values in the input section, and the output section displays the both the calculated value and the result rounded to the nearest value in the E12 series. Enter the values with all necessary zeros, thus ‘3400’ instead of ‘3k4’ and ‘4000000’ instead of ‘4 M’. If you want to leave a cell empty, don’t type a zero, since the program won’t like this (due to divide-by-zero problems). Instead, type any arbitrary value and then delete it. You can also use decimal values, with a period as a separator. You don’t have to enter commas to separate the thousands; Excel will generate them automatically.

The formulas behind this program are not especially complex. A series circuit simply involves summing the values, and a parallel circuit is calculated by adding up the 1/Rx values and then computing the inverse value of the sum.

You might enjoy having a look at the program and modifying it to suit your own taste. First unlock the worksheet via Tools → Protection → Unprotect Sheet. Now you can change anything that you want. For a brief description of the routine that computes the E12 value, see the article ‘E12 in Excel’ elsewhere in this issue. You can find the spreadsheet on the *Elektor Electronics* website, *http://www.elektor-electronics.co.uk*.


Microsoft Excel - seriespar_UK.xls
File Edit View Insert Format Tools Data Window Help
100%
Arial
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A B C D E F G H I
PR E12 Blad3
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Parallel or series equivalent value for resistors and capacitors

Input	
value 1	1.00
value 2	19.00
value 3	
value 4	

Results		E12
R, series equivalent	20.00	22.00
R, parallel equivalent	0.95	1.00
C, series equivalent	0.95	1.00
C, parallel equivalent	20.00	22.00

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